

PATENT APPLICATION

RESPONSE UNDER 37 C.F.R. §1.116  
U.S. Application No. 08/833,511

directed to a multi-channel adaptive echo canceler. The Examiner has rejected claim 1 stating it would have been obvious to a skilled artisan to modify Shibata's teleconferencing system with Larson's unitary housing having Hirano's multi-channel adaptive echo canceler.

As argued in the Preliminary Amendment filed on December 23, 1999, independent claims 1 and 7 recite a *unitary housing* that includes audio capture capabilities (such as a camera and microphone), a monitor, audio reproduction capabilities (such as speakers) and an adaptive acoustic echo canceler. These claims recite that the audio capture and reproduction devices are integrated into the unitary housing in a fixed spatial relationship with respect to each other and cooperate with the adaptive acoustic echo canceler.

Furthermore, the claimed unitary housing (a feature not shown in Shibata) has a non-obvious advantage for the claimed echo cancellation technique. As pointed out in the Preliminary Amendment, adaptive acoustic echo cancellation requires sophisticated modeling of an environment that includes modeling of the objects from which sound is reflected, including their size, location, and acoustic properties. There is more involved than just installing components in a single box, which is all that the prior art combination on which the Examiner relies amounts to.

To achieve the necessary modeling (to identify the claimed fixed spatial relationship and cooperation, for example), adaptive acoustic echo cancellation also takes into account *the relative positioning of speakers and microphones* with respect to one another. Thus, both independent claims 1 and 7 recite that the *audio capture and reproduction devices are integrated*

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*into the unitary housing in a fixed spatial relationship with respect to each other and cooperate with the acoustic echo canceler to reduce echo during the reproduction of the audio.* The unitary housing has the distinct advantage that the relative position of the speakers and microphone(s) are known - because they are built into fixed positions in the housing at the time of manufacture. This allows the claimed echo canceler to be, at least in part, "pretrained," making the echo canceling quicker, more efficient, more reliable, and less computation intensive.

Moreover, if the speakers and microphones were relatively moveable (and were, indeed, moved) during a video conference the result would be an immediate retraining of the adaptive acoustic echo canceler. As training is often accomplished by use of "white noise," the relevant disturbance would be unacceptable in a video conferencing environment. Accordingly, the claim unitary housing has significant advantages.

By contrast, the language in Shibata describing its multipoint teleconference system does not describe or imply the existence of or the need for a unitary housing with the speaker(s) and microphone(s) in fixed position with respect to one another. The description of figure 2 (Col. 3-4) merely describes the functionality of the components of the system, but does not even imply that housing the components in a single structure allows either individual components or the entire system to function more effectively.

Therefore, Applicants submit that the Preliminary Amendment arguments were correct, and the prior art cannot support this rejection. At most, this art shows a bunch of things thrown in a box, for purposes of compactness (as the Examiner notes), without the required claimed relationship.

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Additionally, three criteria must be met to establish a prima facie case of obviousness: there must be a suggestion or motivation to combine references which is found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art; there must be a reasonable expectation of success; and there must be teaching or suggestion of all the claim limitations. See MPEP § 2143 (emphasis added). The burden of establishing a prima facie case of obviousness rests with the examiner.

The motivation to combine may come explicitly from statements in the prior art, the knowledge of a skilled artisan, or, in some cases the nature of the problem. Further, the motivation to combine may be implicit rather than expressly stated, and the test for implicit motivation to combine is what the combined teachings, knowledge of a skilled artisan, and the nature of the problem as a whole would suggest to the skilled artisan. See In re Kotzab, 55 USPQ 2d 1313, 1317 (Fed. Cir. 2000) (internal citations omitted).

In establishing a prima facie case, it is impermissible for an examiner to rely solely upon the knowledge of a skilled artisan to supply the motivation to combine and nothing else. “The examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no prior knowledge of the claimed invention, would select elements from the cited prior art references for combinations in the manner claimed.” See In re Rouffet, 47 USPQ 2d 1453, 1458-9 (Fed. Cir. 1998). In other words, an examiner must specifically identify the principles which are known to a skilled artisan that would suggest the combination. The “naked invocation of skill in the art is clearly erroneous”. See Rouffet at 1459.

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For at least the following two reasons, the Examiner erred by rejecting claim 1 as being obvious over Shibata in view of Larson and Hirano. First, the Examiner cited only skill in the art as supplying the motivation to combine without identifying the specific principles that would teach or suggest the combination. In the Office Action dated November 3, 2000, the Examiner has identified the scope of each reference, Larson being a videophone having a unitary housing and Hirano being a multi-channel echo canceling method. However, the Examiner offers no reason why a skilled artisan would be motivated to combine a videophone, which is in a unitary housing that is meant for a single user, with a multi-channel echo canceling method, which is meant for a plurality of users, to achieve a collaborative multimedia workstation, again for a single user.

Second, the Examiner's asserted motivation for combining Shibata and Hirano is compactness. This assertion belittles the technological issues associated with putting all of the claimed elements in the unitary housing. This is not a mere packaging arrangement. There is nothing in the references to indicate that the combination the Examiner has urged provides any reasonable expectation of success.

Independent claim 7 was rejected by the Examiner for at least the same combination of Larson and Hirano. Applicants respectfully suggest that the Examiner has erred by rejecting claim 7 for at least the reasons presented above.

Claims 2-6, 9, 11-15 and 25-32 are dependent claims, and Applicants respectfully submit that they are patentable for at least the same reasons presented above.

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Pursuant to the foregoing, Applicants respectfully submit that all of the pending claims 1-7, 9, 11-15, and 25-32 are patentable.

The Examiner's rejections having been overcome, Applicants submit that the subject application is in condition for allowance. The Examiner is respectfully requested to contact the undersigned at the telephone number listed below to discuss other changes deemed necessary. Applicants hereby petition for any extension of time which may be required to maintain the pendency of this case, and any required fee for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,

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PATENT TRADEMARK OFFICE

Date: February 5, 2001

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I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to:

Assistant Commissioner for Patents  
Washington, D.C. 20231

Date: February 5, 2001

Signed:   
Thea K. Wagner